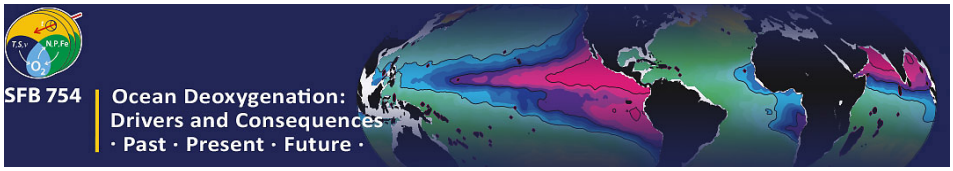

Contribution ID : **36** Type : **Poster**

Hydroxylamine as a precursor for nitrous oxide in the equatorial Atlantic Ocean and eastern tropical South Pacific Ocean

Hydroxylamine (NH_2OH), a short-term intermediate in the nitrogen cycle, is a potential precursor of nitrous oxide (N_2O) formation in the ocean. During nitrification, the oxidation of ammonium (NH_4^+) to nitrate (NO_3^-), N_2O is produced as a by-product via NH_2OH and nitrite (NO_2^-). However, measurements of NH_2OH in the ocean are sparse. Here, we present a dataset of depth profiles of NH_2OH from the equatorial Atlantic Ocean and the eastern tropical South Pacific (ETSP) and compare it to N_2O, NO_3^- and NO_2^- profiles under varying oxygen conditions. Overall, the NH_2OH concentrations were in the lower nanomolar range and lower than N_2O concentrations. In the equatorial Atlantic Ocean, where nitrification is the dominant N_2O pathway, stepwise multiple regressions demonstrated that N_2O, NH_2OH and NO_3^- concentrations were highly correlated, indicating that NH_2OH is a precursor of N_2O and a tracer for nitrification. This relationship weakens in the ETSP and no correlations are found in the oxygen minimum zone (OMZ) off Peru where besides nitrification other N_2O pathways like denitrification occur.

Position

Postdoc

Affiliation

Geomar

Email Address

fkorth@geomar.de

Are you a SFB 754 / Future Ocean member?

Yes

Primary author(s) : KORTH, Frederike; KOCK, Annette; ARÉVALO-MARTÍNEZ , Damian L.; BANGE, Hermann W.

Presenter(s) : KORTH, Frederike

Track Classification : 10 Biogeochemical Cycles: Feedbacks and Interactions